

**NATIONAL WEATHER SERVICE INSTRUCTION 10-513
DECEMBER 23, 2003**

**Operations and Services
Public Weather Services, NWSPD 10-5**

WFO WINTER WEATHER PRODUCTS SPECIFICATION

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>.

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SUMMARY OF REVISIONS: This instruction supercedes NWSI 10-513, “WFO Winter Weather Products Specification,” dated October 2, 2002. The following revisions were made to this instruction:

- 1) Valid time for winter weather outlooks has been extended from three to five days to three to seven days to be consistent with the Hazardous Weather Outlook product.
- 2) Changed Winter Storm Outlook product format (Section 3) to be consistent with the segmented Special Weather Statement product format
- 3) Added a NWS attribution phrase for the initial issuance of winter weather watches/warnings/advisories in order to be consistent with severe weather warning products.
- 4) Added Wind Chill products (Watch/Warning/Advisory, Tables 1, 2, & 4) to this directive and removed from NWSI 10-515.
- 5) Added Blowing Snow Advisory (Table 4) to this directive and removed from NWSI 10-515.
- 6) Added Wind Chill description and chart to Appendix B to this directive and removed from NWSI 10-515.

signed

10/23/03

Gregory A. Mandt
Director, Office of Climate,
Water, and Weather Services

Date

WFO Winter Weather Products Specification

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1. **Introduction.** This procedural directive describes the winter weather products issued by National Weather Service Weather Forecast Offices (WFOs), guidelines associated with these products, and detailed content and format for each product type.
2. **Multitiered Concept.** The National Weather Service (NWS) winter weather warning program will use, when appropriate, the multitiered concept to increase public awareness and promote a proper response to the impending hazardous winter weather event. Generically, the multitiered concept is:
 - a. **Outlook** – An outlook is used to indicate that a hazardous winter weather event may develop. It is intended to provide information to those who need considerable lead time to prepare for the event.
 - b. **Watch** – A watch is used when the risk of a hazardous winter weather event has increased, but its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so those who need to set their plans in motion can do so.
 - c. **Warning/Advisory** – These products are issued when a hazardous winter weather event is occurring, is imminent, or has a very high probability of occurrence. A warning is used for conditions posing a threat to life or property. Advisories are for less serious conditions that cause significant inconvenience and, if caution is not exercised, could lead to situations that may threaten life and/or property.

To properly apply the multitiered concept, it is important to have agreement between the forecast staff and other affected WFOs to reach a forecast consensus. This will reduce the on-again, off-again syndrome and geographical/time discontinuities, especially for the longer duration products like outlooks and watches. Proper coordination will enable the NWS to speak with one voice when alerting users to the potential for such an event.

3. **Winter Storm Outlook (product category SPS).**

3.1 **Mission Connection.** Winter Storm Outlooks provide our customers and partners three to seven (3 - 7) day advance notice of a hazardous winter weather event which has the potential to threaten life or property. The primary goal of this product is to provide information to those who need considerable lead time to prepare for the event.

3.2 **Issuance Guidelines.**

3.2.1 **Creation Software.** WFOs should use the AWIPS Watch/Warning/Advisory (WWA) software to create and issue Winter Storm Outlooks.

3.2.2 **Issuance Criteria.** WFOs may issue Winter Storm Outlooks when conditions are favorable for a significant hazardous winter weather event to develop over part or all of the forecast area in the three to seven (3 - 7) day forecast period, or beyond the point normally

covered by a watch. Winter Storm Outlooks are issued when there is a 30 percent or greater chance of a hazardous winter weather event exceeding local warning criteria

3.2.3 Issuance Time. The Winter Storm Outlook is an event-driven product. WFOs should issue the initial outlook, when the issuance criteria is met. Subsequent outlook updates should occur at least once every 12 hours until a Winter Storm Watch is issued or the weather threat has diminished.

3.2.4 Valid Time. A Winter Storm Outlook is valid for the three to seven (3 - 7) day forecast time frame. The valid time is described in the outlook headline.

3.2.5 Product Expiration Time. The expiration time is generally 12 hours after the issuance time and should coincide with the next scheduled morning or afternoon forecast package.

3.2.6 Event Expiration Time. The event expiration time is described in the outlook headline and is set for the three to seven (3 - 7) day forecast time frame.

3.3 Technical Description. Winter Storm Outlooks will follow the format and content described in this section.

3.3.1 Universal Geographic Code Type. Winter Storm Outlooks will use the (Z) form of the UGC.

3.3.2 Mass News Disseminator Broadcast Instruction Line. Not applicable.

3.3.3 Mass News Disseminator Product Type Line. The Winter Storm Outlook MND line is "WINTER STORM OUTLOOK." WFOs may denote the area covered by the outlook, such as "WINTER STORM OUTLOOK FOR SOUTHWEST MICHIGAN."

3.3.4 Content. The content of a Winter Storm Outlook will contain an overview headline and a meteorological discussion.

3.3.4.1 Overview Headline. Include a descriptive headline describing the hazardous weather threat (e.g., heavy snow, ice storm, etc.), expected time of development, and the areas affected. The overview headline will begin and end with three periods (...).

Examples:

...SIGNIFICANT WINTER WEATHER IS POSSIBLE FOR WEST CENTRAL TEXAS
ON SATURDAY AND SUNDAY...
...A WINTER STORM WITH HEAVY SNOW MAY BE HEADED TOWARD
CENTRAL PENNSYLVANIA ON WEDNESDAY...

3.3.4.2 Meteorological Discussion. A general weather synopsis describing the upcoming hazardous weather event. The discussion may include major weather features (development and path of storm systems and cold fronts), their possible impact and the uncertainty involved. The prime objective of the outlook is to inform users of the potential of the upcoming hazardous weather event. Here are some additional guidelines:

- a. Include a general time and location of the hazardous weather event.
- b. Outlooks should contain only qualifying terms, such as “chance of heavy snow,” “significant snowfall possible” or “possibility of damaging ice accumulation.” Definitive, quantitative and specific wording should be reserved for warning situations.
- c. Avoid technical terms and, due to the long-term time frame, describe the inherent uncertainty of the event or storm path.
- d. When applicable, use HPC text and graphic products as guidance.

3.3.5 Format.

<u>Product Format</u>	<u>Description of Entry</u>
WWaaii cccc ddhhmm	(WMO Heading)
SPSxxx	(AWIPS ID)
WINTER STORM OUTLOOK	(Product Name or MND)
NATIONAL WEATHER SERVICE city state time	(Issuing Office)
am/pm time_zone day mon dd yyyy	(Issuance time/date)
stZ001-005>015-ddhhmm-	(UGC: Z & Product expiration
zone-zone-zone	time)(Zone Names)
INCLUDING <THE CITIES OF> location...location	(City /Location - optional)
time am/pm time_zone day mon dd yyyy	
...<Overview headline statement>...	(Issuance time/date)
<Meteorological discussion of developing winter weather event, potential impact, inherent uncertainty of event>	(One to two paragraphs)
<call-to-action (cta) statements>	(Last paragraph, brief)
\$\$	(UGC Delimiter)
Name/Initials/Forecaster ID	(Optional)

Figure 1. Generic format for a Winter Storm Outlook.

3.4 Updates, Amendments, and Corrections. Winter storm outlooks are updated at least once every 12 hours until a watch is issued or the weather threat diminishes. If the weather threat diminishes, do not issue a cancellation statement for an outlook. Issue an SPS highlighting the reason the threat diminished.

WFOs will issue correction statements for format or grammatical errors as required. To reduce format or grammatical errors, forecasters should proofread the product before transmission.

4. Winter Weather Watches (product category WSW).

4.1 Mission Connection. Winter weather watches provide our customers and partners 12 to 48 hour advance notice of a hazardous winter weather event which has the potential to threaten life or property. The primary goal of this product is to provide customers and partners enough lead time to take appropriate action.

4.2 Issuance Guidelines.

4.2.1 Creation Software. WFOs should use the AWIPS WWA software to create and issue winter weather watches.

4.2.2 Issuance Criteria. WFOs will issue a winter weather watch when conditions are favorable for a hazardous winter weather event to develop over part or all of the forecast area, but the occurrence is uncertain. WFOs should issue winter weather watches for the second, third, or occasionally fourth forecast periods, when there is a 50 percent or greater chance of a hazardous winter weather event meeting or exceeding local warning criteria.

4.2.2.1 Winter Weather Watch Products. WFOs will issue the following winter weather watch products:

Watch Product Name	Description
Blizzard Watch	Conditions are favorable for a blizzard event to meet or exceed Blizzard Warning criteria in the next 12 to 48 hours.
Lake Effect Snow Watch	Conditions are favorable for a lake effect snow event to meet or exceed local Lake Effect Snow Warning criteria in the next 12 to 48 hours.
Wind Chill Watch	Conditions are favorable for wind chill temperatures to meet or exceed local Wind Chill Warning criteria in the next 12 to 48 hours.
Winter Storm Watch	Conditions are favorable for a winter storm event (Heavy Sleet, Heavy Snow, Ice Storm, Heavy Snow and Blowing Snow or a combination of events) to meet or exceed local Winter Storm Warning criteria in the next 12 to 48 hours.

Table 1. Winter weather watch product table.

4.2.3 Issuance Time. A winter weather watch is an event-driven product. WFOs should issue the initial watch when the issuance criteria is met. Subsequent updates are issued at least once every 12 hours until a warning or advisory is issued or the watch is cancelled.

4.2.4 Valid Time. A winter weather watch is valid for 12 to 48 hours after the issuance time. The valid time (event start and end time) is described in the watch headline.

4.2.5 Product Expiration Time. The product expiration time is generally 12 hours after the issuance time. The product expiration time is placed in the UGC line.

4.2.6 Event Expiration Time. The event expiration time is when the hazardous event is expected to end. The event expiration time is described in the watch headline (e.g., WINTER STORM WATCH IN EFFECT FROM MONDAY MORNING TO TUESDAY MORNING).

4.3 Technical Description. Winter Storm Watches will follow the format and content described in this section.

4.3.1 Universal Geographic Code Type. Winter Storm Watches will use the (Z) form of the UGC.

4.3.2 Mass News Disseminator Broadcast Instruction Line. Not applicable.

4.3.3 Mass News Disseminator Product Type Line. The Winter Storm Watch MND line is “URGENT-WINTER WEATHER MESSAGE.”

4.3.4 Winter Storm Watch Content. The content of a Winter Storm Watch may contain an overview section, but will include segmented forecast information.

4.3.4.1 Overview Section. The Winter Storm Watch overview section is optional. If included, it should contain at least one of the following items:

- a. Overview Headline - a general headline statement that summarizes the hazardous weather threat, expected time of development and area affected. The overview headline will begin and end with three periods (...). For example:

...ANOTHER MAJOR WINTER STORM TO IMPACT THE PACIFIC
NORTHWEST ON MONDAY AND TUESDAY...
...A SIGNIFICANT ICE STORM MAY BE HEADED OUR WAY THIS
WEEKEND...

- b. Overview - a brief, non-technical description of the developing winter storm event. The description may include the location and movement of large scale weather features (e.g., fronts, low pressure systems). Precede the first line of this descriptive information by a period (.).

4.3.4.2 Segmented Forecast Information. Each segment of the Winter Storm Watch will include a watch headline followed by a descriptive text describing why the watch was issued. Each segment describes a specific hazardous winter weather event.

- a. Watch Headline. The watch headline will use the phrase “WINTER STORM WATCH IN EFFECT”, “LAKE EFFECT SNOW WATCH IN EFFECT”, “BLIZZARD WATCH IN EFFECT” or “WIND CHILL WATCH IN EFFECT”. The watch headline will also include a general time phrase to describe the event valid time, and begin and end with three periods (...).

Examples:

...WINTER STORM WATCH IN EFFECT SUNDAY NIGHT AND
MONDAY...

...WINTER STORM WATCH IN EFFECT WEDNESDAY THROUGH THURSDAY ...

- b. Watch descriptive Text. This section will provide the following watch information:

- (1) National Weather Service attribution line. For the **initial** warning, include the following phrase to begin the text of a warning:

THE NATIONAL WEATHER SERVICE IN [WFO NAME or LOCATION] HAS ISSUED A (BLIZZARD/LAKE EFFECT SNOW/WIND CHILL/WINTER STORM) WARNING.

The attribution line is optional for subsequent issuances.

- (2) Reason watch was issued.
- (3) Generalized quantitative wind chill values, snowfall amounts or ice accumulations based upon local warning criteria (e.g., wind chill values to 30 below zero possible, greater than 6 inches possible, the potential exists for more than one quarter inch of ice accumulation).
- (4) Explanation of a watch and uncertainty involved. Include the following phrase to define a winter weather watch:

REMEMBER...A (BLIZZARD/LAKE EFFECT SNOW/WIND CHILL/WINTER STORM) WATCH MEANS CONDITIONS ARE FAVORABLE FOR A HAZARDOUS (BLIZZARD/LAKE EFFECT SNOW/WIND CHILL/WINTER WEATHER) EVENT IN AND CLOSE TO THE WATCH AREA.

- (5) Brief potential impact or Call To Action (CTA) statements. CTAs can be effective in reminding people what actions to take in preparing themselves for the potential hazardous winter weather event.

- c. Order of Segments. Winter Storm Watches are placed last in the order of segments. This order was designed to place the most important and/or time sensitive information near the beginning of the message. The order of segments is:

- (1) Cancellation
(2) Warnings
(3) Advisories
(4) **Watches**

Note: A watch and warning or watch and advisory for separate hazardous events should be placed in the same segment, when the geographical area of the two events remain constant.

4.3.5 Format.

<u>Product Format</u>	<u>Description of Entry</u>
WWaaii cccc ddhhmm	(WMO Heading)
WSWxxx	(AWIPS ID)
URGENT - WINTER WEATHER MESSAGE	(Product Name or MND)
NATIONAL WEATHER SERVICE city state	(Issuing Office)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...<Overview headline statement>...	(Optional)
.<General weather synopsis of developing winter storm>	(Optional - one to three paragraphs)
stZ001-005>015-ddhhmm-	(UGC: Z & expiration time)
zone-zone-zone-	(Zone Names)
INCLUDING <THE CITIES OF> location...location	(City /Location - optional)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...WATCH HEADLINE...	(Two to three paragraphs)
<Descriptive Text>	(Optional after initial issuance)
{Includes the following information:	
1. NWS attribution line	
2. Why watch was issued	
3. Potential Impact	
4. Definition of a watch with uncertainty	
5. Call to Action statements}	
	(UGC Delimiter)
\$\$	(Optional after last segment)
Name/Initials/Forecaster ID	

Figure 2. Generic format for a Winter Storm Watch.

4.4 Updates, Amendments, Cancellations and Corrections. WFOs will update Winter Storm Watches at least once every 12 hours, or when there is a change in timing, areal extent, or expected conditions. Winter storm watches either upgraded into warnings or advisories, or canceled.

WFOs will issue a WSW to cancel a watch when the forecaster believes the threat of hazardous winter weather will not develop.

WFOs will issue correction statements for format or grammatical errors as required. To reduce format or grammatical errors, forecasters should proofread the product before transmission.

5. **Winter Weather Warnings (product category WSW).**

5.1 **Mission Connection.** Winter weather warnings provide our customers and partners advance notice of hazardous winter weather events that threaten life or property.

5.2 **Issuance Guidelines.**

5.2.1 **Creation Software.** WFOs should use the AWIPS WWA software to create and issue winter weather warnings.

5.2.2 **Issuance Criteria.** WFOs will issue winter weather warnings when hazardous winter weather is occurring, imminent, or has a high probability of occurrence over part or all of the forecast area. WFOs should issue winter weather warnings for the first, second, or occasionally third forecast periods, when there is an 80 percent or greater chance of a hazardous winter weather event meeting or exceeding local warning criteria.

5.2.2.1 **Winter Weather Warning Products.** WFOs will issue the following winter weather warning products:

Warning Product Name	Issuance Criteria
Blizzard Warning	Sustained wind or frequent gusts greater than or equal to 35 mph accompanied by falling and/or blowing snow, frequently reducing visibility to less than 1/4 mile for three hours or more.
Heavy Snow Warning	Snow accumulation meeting or exceeding locally defined 12 and/or 24 hour warning criteria.
Lake Effect Snow Warning	Widespread or localized lake induced snow squalls or heavy showers which produce snowfall accumulation meeting or exceeding locally defined warning criteria. Lake Effect Snow usually develops in narrow bands and impacts a limited area within a zone(s).
Ice Storm Warning	Ice accumulation meeting or exceeding locally defined warning criteria (typical value is 1/4 inch or more).
Heavy Sleet Warning	Sleet accumulation meeting or exceeding locally defined warning criteria (typical value is 1/2 inch or more).

Wind Chill Warning	Wind chill temperatures reaching or exceeding locally defined warning criteria (typical value is -18°F or colder).
Winter Storm Warning	Winter weather event having more than one <u>predominant</u> hazard (i.e., heavy snow and blowing snow - see Section 5.2.2.4, snow and ice, snow and sleet, sleet and ice, or snow, sleet and ice) meeting or exceeding locally defined 12 and/or 24 hour warning criteria for at least one of the precipitation elements.

Table 2. Winter weather warning product table.

5.2.2.2 Minimum Forecast Snowfall Criteria. Heavy Snow Warnings are based on an average value (rounded up to the nearest inch) of the forecast snowfall range. The forecast average value must meet or exceed the 12 and/or 24 hour local warning criteria depending on the duration of the event. The event duration is from the time winter weather precipitation begins to when it ends.

Local Heavy Snow Warning Criteria (Inches)	Forecast Range (Inches)	Mid Point Value (Inches)	Issue Warning ?
4	3 to 5	4	Yes
	2 to 4	3	No
6	4 to 8	6	Yes
	3 to 6	4.5	No
8	5 to 10	7.5	Yes (round up to 8)
	4 to 8	6	No
12	10 to 14	12	Yes
	6 to 12	9	No

Table 3. Example of minimum snowfall forecast criteria for Heavy Snow Warnings.

5.2.2.3 Forecast Criteria Exception. During early and late season storms, or in places where winter weather is rare, WFOs may issue winter weather warnings based on significant public impact events which do not meet local warning criteria. For example, if a storm (such as one with heavy, wet snow or a mixture of snow, freezing rain and sleet) is forecast to significantly affect transportation, commerce or electrical power service, then the event warrants a warning.

5.2.2.4 Heavy Snow and Blowing Snow Events. WFOs should issue a Winter Storm Warning for combined heavy snow and blowing snow events (below blizzard conditions) when:

- a) Snow accumulation meets or exceeds locally defined 12 and/or 24 hour warning criteria, and
- b) Sustained wind or frequent gusts of 25 to 34 mph (or locally defined) accompanied by falling and blowing snow, occasionally reducing visibility to 1/4 mile or less for three hours or more.

5.2.3 Issuance Time. A winter weather warning is an event-driven product and is initially issued when a hazardous winter weather event is expected to meet or exceed local warning criteria. WFOs should issue updated warnings at least once every six to eight hours until the event ends or is canceled.

5.2.4 Valid Time. A winter weather warning is valid up to 36 hours after the issuance time. The valid time (event start and end times) is described in the warning headline. The valid time should generally not exceed 36 hours from the time of issuance.

5.2.5 Product Expiration Time. The product expiration time is generally 6 to 8 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end. The product expiration time is placed in the UGC line.

5.2.6 Event Expiration Time. The event expiration time is when the hazardous winter weather event is expected to end. The event expiration time can match the product expiration time if the warning is in effect for eight hours or less. The event expiration time is described in the warning headline (e.g., ICE STORM WARNING IN EFFECT UNTIL 900 AM EST MONDAY). The event expiration time should generally not exceed 36 hours from the time of issuance.

5.3 Technical Description. Winter weather warnings will follow the format and content described in this section.

5.3.1 Universal Geographic Code Type. Winter weather warnings will use the (Z) form of the UGC.

5.3.2 Mass News Disseminator Broadcast Instruction Line. Not applicable.

5.3.3 Mass News Disseminator Product Type Line. The winter weather warning MND line is "URGENT-WINTER WEATHER MESSAGE."

5.3.4 Content. The content of a winter weather warning may contain an overview section, but will include segmented forecast information.

5.3.4.1 Overview Section. The winter weather warning overview section is optional. If included, it should contain at least one of the following items:

- a. Overview Headline - a general headline statement that summarizes the hazardous weather threat, expected time of development and area affected. The overview headline will begin and end with three periods (...). For example:

...A MAJOR WINTER STORM WILL IMPACT THE PACIFIC
NORTHWEST...
...ICE STORM WARNINGS ISSUED FOR CENTRAL PENNSYLVANIA
TODAY...

- b. Overview - a brief, non-technical description of the developing winter storm event. The description may include the location and movement of large scale weather features (e.g., fronts, low pressure systems). The first line of this descriptive information will be preceded by a period (.).

5.3.4.2 Segmented Forecast Information. Each segment of a winter weather warning will include a warning headline followed by a descriptive text describing why the warning was issued. Each segment describes a specific hazardous winter weather event.

- a. Warning Headline. The warning headline will include one of the winter weather warning products and a specific time phrase to describe when the warning is in effect for. The warning headline will also begin and end with three periods (...).

Examples:

...HEAVY SNOW WARNING IN EFFECT UNTIL 800 AM EST MONDAY...

...ICE STORM WARNING REMAINS IN EFFECT UNTIL 1000 PM PST THIS
EVENING...

- b. Warning descriptive Text. This section will include the following warning information:

- (1) National Weather Service attribution line. For the **initial** warning, include the following phrase to begin the text of a warning:

**THE NATIONAL WEATHER SERVICE IN [WFO NAME or
LOCATION] HAS ISSUED A (BLIZZARD/HEAVY SNOW/ICE
STORM/HEAVY SLEET/LAKE EFFECT SNOW/WIND CHILL/WINTER
STORM) WARNING.**

The attribution line is optional for subsequent issuances.

- (2) Reason warning was issued. Include winter weather element(s) prompting the warning.
- (3) Quantitative snowfall amounts or ice accumulation (e.g., 3 to 6 inches, 8 to 12 inches, one quarter to one half inch of ice accumulation).
- (4) Definition of a warning, when event has not yet begun. Use the

following phrase to define a warning:

REMEMBER...A (*BLIZZARD/HEAVY SNOW/ICE STORM/HEAVY SLEET/LAKE EFFECT SNOW/WIND CHILL/WINTER STORM*)
WARNING MEANS SEVERE WINTER WEATHER CONDITIONS ARE IMMINENT OR HIGHLY LIKELY.

- (4) Brief call to action statements, safety rules. Include frostbite time references for Wind Chill Warnings. The threshold for dangerous Wind Chill Temperatures start at -18°F, where frostbite can occur on exposed flesh in 30 minutes.
- c. Order of Segments. Winter weather warnings are placed second in the order of segments. This order was designed to place the most important and/or time sensitive information near the beginning of the message. The order of segments is:
 - (1) Cancellation
 - (2) Warnings**
 - (3) Advisories
 - (4) Watches

Note: A warning and watch or warning and advisory for separate hazardous events should be placed in the same segment, when the geographical area of the two events remain constant.

5.3.5 Format.

<u>Product Format</u>	<u>Description of Entry</u>
WWaaii cccc ddhhmm	(WMO Heading)
WSWxxx	(AWIPS ID)
URGENT - WINTER WEATHER MESSAGE	(Product Name or MND)
NATIONAL WEATHER SERVICE city state	(Issuing Office)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...<Overview headline statement>...	(Optional)
.<General weather synopsis of winter storm>	(Optional - one to three paragraphs)
stZ001-005>015-ddhhmm-	(UGC: <u>Z</u> & expiration time)
zone-zone-zone-	(Zone Names)
INCLUDING <THE CITIES OF> location...location.	(City /Location - optional)
time am/pm time_zone day mon dd yyyy	(Issuance time/date)
...WARNING HEADLINE...	
<Descriptive Text>	(Two to three paragraphs)
{Includes the following information:	
1. NWS attribution line	(Optional after first issuance)
2. Why warning was issued (winter weather element(s) prompting the warning).	
3. Detailed snowfall/ice accumulation/sleet amounts (e.g., 3 to 6 inches, 8 to 12 inches, one half inch of ice accumulation, one inch of sleet).	
4. Timing of the event (beginning, ending, time of heaviest precipitation or worst conditions, duration).	
5. Definition of a warning (before event begins)	
6. Potential impact, call to action statement}	
\$\$	(UGC Delimiter)
Name/Initials/Forecaster ID	(Optional after last segment)

Figure 3. Generic format for a winter weather warning.

5.4 Updates, Amendments, and Corrections. WFOs will update winter weather warnings at least once every six to eight hours until the event ends or is canceled. The frequent updates will keep our customers and partners informed on the current and short term aspects of the winter storm. Update warnings whenever there is a change in timing, areal extent, or expected conditions.

WFOs will issue a WSW to cancel a warning when the forecaster believes the weather threat has diminished before the valid time expires.

WFOs will issue correction statements for format or grammatical errors as required. To reduce format or grammatical errors, forecasters should proofread the product before transmission.

6. **Winter Weather Advisories (product category WSW).**

6.1 **Mission Connection.** Winter weather advisories provide our customers and partners advance notice of hazardous winter weather events which could lead to life-threatening situations if caution is not exercised.

6.2 **Issuance Guidelines.**

6.2.1 **Creation Software.** WFOs should use the AWIPS WWA software or other text editors to create and issue winter weather advisories.

6.2.2 **Issuance Criteria.** WFOs will issue winter weather advisories for hazardous winter weather that causes significant inconveniences, and if caution is not exercised, could lead to life-threatening situations over part or all of the forecast area. WFOs should issue winter weather advisories for the first, second, or occasionally third forecast periods, when there is an 80 percent or greater chance of a hazardous winter weather event meeting or exceeding local advisory criteria.

6.2.2.1 **Winter Weather Advisory Products.** WFOs will issue the following winter weather advisory products:

Advisory Product Name	Issuance Criteria
Blowing Snow Advisory	Widespread or localized blowing snow reducing visibilities to 1/4 mile or less and winds less than 35 mph.
Freezing Rain Advisory	Light ice accumulation (freezing rain and/or freezing drizzle) meeting or exceeding locally defined advisory criteria, but remaining below warning criteria.
Lake Effect Snow Advisory	Widespread or localized lake effect snowfall accumulation reaching or exceeding locally defined advisory criteria, but remaining below warning criteria.
Sleet Advisory	Sleet accumulation reaching or exceeding locally defined advisory criteria, but remaining below warning criteria.
Snow Advisory	Snowfall accumulation meeting or exceeding locally defined advisory criteria, but remaining below warning criteria.

Snow and Blowing Snow Advisory	Sustained wind or frequent gusts of 25 to 34 mph (or locally defined) accompanied by falling <u>and</u> blowing snow, occasionally reducing visibility to 1/4 mile or less for three hours or more.
Wind Chill Advisory	Wind chill temperatures reaching or exceeding locally defined advisory criteria, but remaining below warning criteria.
Winter Weather Advisory	Winter weather event having more than one predominant hazard (i.e., snow and ice, snow and sleet, or snow, ice and sleet) meeting or exceeding locally defined 12 and/or 24 hour advisory criteria for at least one of the precipitation elements, but remaining below warning criteria.

Table 4. Winter weather advisory product table.

6.2.2.2 Minimum Forecast Snowfall Criteria. Snow Advisories are based on an average value (rounded up to the nearest inch) of the forecast snowfall range. The forecast average value must meet or exceed the 12 and/or 24 hour local advisory criteria depending on the duration of the event. The event duration is from the time the snow begins to when it ends.

Local Snow Advisory Criteria (Inches)	Forecast Range (Inches)	Mid Point Value (Inches)	Issue Advisory?
3	2 to 4	3	Yes
	1 to 3	2	No
5	4 to 6	5	Yes
	3 to 5	4	No
7	5 to 8	6.5	Yes (round up to 7)
	3 to 7	5	No

Table 5. Examples of minimum snowfall forecast criteria for Snow Advisories.

6.2.2.3 Forecast Criteria Exception. During early and late season winter weather events, and in places where winter weather is rare, WFOs may issue winter weather advisories based on public impact events which do not meet local advisory criteria. For example, if a storm (such as wet snow or a mixture of snow, freezing rain and sleet) is forecast to affect transportation and commerce, then the event warrants an advisory.

6.2.3 Issuance Time. Advisories are event-driven products and are initially issued when a hazardous winter weather event is expected to meet or exceed local advisory criteria. WFOs should issue updated advisories at least once every six to eight hours until the event ends or is canceled.

6.2.4 Valid Time. A winter weather advisory is valid up to 36 hours after the issuance time. The valid time (event start and end times) is described in the advisory headline.

6.2.5 Product Expiration Time. The product expiration time is generally 6 to 8 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end. The product expiration time is placed in the UGC line.

6.2.6 Event Expiration Time. The event expiration time is when the hazardous winter weather event is expected to end. The event expiration time can match the product expiration time if the advisory is in effect for eight hours or less. The event expiration time is placed and described in the warning headline (e.g., SNOW ADVISORY IN EFFECT UNTIL 900 AM EST MONDAY). The event expiration time should generally not exceed 36 hours from the time of issuance.

6.3 Technical Description. Winter weather advisories will follow the format and content described in this section.

6.3.1 Universal Geographic Code Type. Winter weather advisories will use the (Z) form of the UGC.

6.3.2 Mass News Disseminator Broadcast Instruction Line. Not applicable.

6.3.3 Mass News Disseminator Product Type Line. The advisory MND line is "URGENT-WINTER WEATHER MESSAGE."

6.3.4 Content. The content of a winter weather advisory may contain an overview section, but will include segmented forecast information.

6.3.4.1 Overview Section. The advisory overview section is optional. If included, it should contain at least one of the following items:

- a. Overview Headline - a general headline statement that summarizes the hazardous weather threat, expected time of development and area affected. The overview headline will begin and end with three periods (...). For example:

...A MIXTURE OF SNOW...SLEET AND FREEZING RAIN WILL IMPACT
SOUTHWEST MICHIGAN TONIGHT...
...LAKE EFFECT SNOW BANDS EXPECTED ACROSS PARTS OF
NORTHEAST OHIO TODAY AND TONIGHT...

- b. Overview - a brief, non-technical description of the developing winter weather event. The description may include the location and movement of large scale weather features (e.g., fronts, low pressure systems). The first line of this descriptive information will be preceded by a period (.).

6.3.4.2 Segmented Forecast Information. Each segment of a winter weather advisory will include the advisory headline followed by a descriptive text describing why the advisory was issued. Each segment describes a specific hazardous winter weather event.

- a. Advisory Headline. The advisory headline will include one of the winter weather advisory products and a specific time phrase to describe when the advisory is in effect for. The advisory headline will also begin and end with three periods (...).

Examples:

...SNOW ADVISORY IN EFFECT UNTIL 8 PM CST THIS EVENING...
...FREEZING RAIN ADVISORY IN EFFECT UNTIL 4 AM MST MONDAY...

- b. Advisory descriptive Text. This section will include the following advisory information:

- (1) National Weather Service attribution line. For the **initial** advisory, include the following phrase to begin the text of the advisory:

THE NATIONAL WEATHER SERVICE IN [WFO NAME or LOCATION] HAS ISSUED A (SNOW/FREEZING RAIN/SLEET/WIND CHILL/WINTER WEATHER, etc.) ADVISORY.

The attribution line is optional for subsequent issuances.

- (2) Reason advisory was issued. Include winter weather element(s) prompting the advisory.
- (3) Quantitative snowfall amounts or ice accumulation (e.g., 3 to 6 inches, 2 to 4 inches, trace to one tenth inch of ice/sleet accumulation).
- (4) Brief call to action statements, safety rules.

- c. Order of Segments. Advisories are placed third in the order of segments. This order was designed to place the most important and/or time sensitive information near the beginning of the message. The order of segments is:

- (1) Cancellation
- (2) Warnings
- (3) Advisories**
- (4) Watches

Note: An advisory and warning or advisory and watch for separate hazardous events should be placed in the same segment, when the geographical area of the two events remain constant.

6.3.5 Format.

<u>Product Format</u>	<u>Description of Entry</u>
WWaaii cccc ddhhmm WSWxxx	(WMO Heading) (AWIPS ID)
URGENT - WINTER WEATHER MESSAGE NATIONAL WEATHER SERVICE city state time am/pm time_zone day mon dd yyyy	(Product Name or MND) (Issuing Office) (Issuance time/date)
...<Overview headline statement>...	(Optional)
.<General weather synopsis of developing winter storm> stZ001-005>015-ddhhmm- zone-zone-zone- INCLUDING <THE CITIES OF> location...location. time am/pm time_zone day mon dd yyyy	(Optional - one to three paragraphs) (UGC: <u>Z</u> & expiration time) (Zone Names) (City /Location - optional) (Issuance time/date)
...ADVISORY HEADLINE...	
<Descriptive text> {Includes the following information: 1. NWS attribution line 2. Why advisory was issued (winter weather element(s) prompting the advisory). 3. Detailed snowfall/ice accumulation/sleet amounts (e.g., 2 to 4 inches, 3 to 6 inches, one tenth of an inch of ice or sleet accumulation). 4. Timing of the event (beginning, ending, time of heaviest precipitation or worst conditions, duration). 5. Potential impact, call to action statements}	(Two to three paragraphs) (Optional after first issuance)
\$\$	(UGC Delimiter)
Name/Initials/Forecaster ID	(Optional after last segment)

Figure 4. Generic format for a winter weather advisory.

6.4 Updates, Amendments, and Corrections. WFOs will update advisories at least once every six to eight hours until the event ends or is canceled. The frequent updates will keep our customers and partners informed on the current and short term aspects of the winter storm. Update advisories whenever there is a change in timing, areal extent, or expected conditions.

WFOs will issue a WSW to cancel an advisory when the forecaster believes the weather threat has diminished before the valid time expires. WFOs will issue correction statements for format or grammatical errors as required. To reduce format or grammatical errors, forecasters should proofread the product before transmission.

APPENDIX A - Winter Weather Product Examples

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1. Introduction. This section contains guidelines and examples of winter weather products.
2. Winter Storm Outlook. An example of a Winter Storm Outlook.
WWUS84 KOUN 282203
SPSOKC

WINTER STORM OUTLOOK
NATIONAL WEATHER SERVICE NORMAN OK
403 PM CST SUN JAN 27 2002

OKZ005>008-010>013-015>020-022>031-035-037>042-044>047-050-051-
TXZ086-089-090-281000-
ALFALFA OK-ARCHER TX-BLAINE OK-CADDO OK-CANADIAN OK-CARTER
OK-CLAY TX-CLEVELAND OK-COMANCHE OK-COTTON OK-CUSTER OK-DEWEY
OK-GARFIELD OK-GARVIN OK-GRADY OK-GRANT OK-JEFFERSON OK-JOHNSTON
OK-KAY OK-KINGFISHER OK-KIOWA OK-LINCOLN OK-LOGAN OK-LOVE OK-
MAJOR OK-MARSHALL OK-MCCLAIN OK-MURRAY OK-NOBLE OK-OKLAHOMA
OK-PAYNE OK-PONTOTOC OK-POTTAWATOMIE OK-SEMINOLE OK-STEPHENS
OK-TILLMAN OK-WASHITA OK-WICHITA TX-WOODS OK-WOODWARD OK-
INCLUDING THE CITIES OF...WICHITA FALLS...IOWA PARK...HENRIETTA...
ELECTRA...BURKBURNETT...WOODWARD...WEATHERFORD...STILLWATER...
SHAWNEE...PONCA CITY...OKLAHOMA CITY...NORMAN...LAWTON...
KINGFISHER...HOBART...GUTHRIE...ENID...EL RENO...EDMOND...DUNCAN...
CLINTON...CHICKASHA...ARDMORE...ALVA AND ADA
403 PM CST SUN JAN 27 2002

...ICE STORM POSSIBLE FOR PARTS OF SOUTHERN PLAINS BY MIDWEEK...

INGREDIENTS ARE COMING TOGETHER FOR A POSSIBLE ICE STORM EVENT AS A
STORM SYSTEM MOVES EAST INTO THE SOUTHERN PLAINS LATE TUESDAY INTO
WEDNESDAY. COLD AIR WILL SPREAD SOUTH TONIGHT THROUGH
WEDNESDAY...WHILE WARM AND MOIST AIR WILL MOVE NORTH OVERRIDING
THE SHALLOW COLD AIR. IF SURFACE TEMPERATURES FALL AND REMAIN
BELOW FREEZING...THE COMBINATION OF WEATHER ELEMENTS HAVE THE
POTENTIAL TO PRODUCE SIGNIFICANT ACCUMULATIONS OF ICE TUESDAY
NIGHT AND WEDNESDAY ACROSS THE OUTLOOK AREA.

PERSONS IN...OR PLANNING TRAVEL THROUGH...WESTERN... CENTRAL AND
NORTHERN OKLAHOMA SHOULD BE AWARE OF THE POSSIBILITY OF ICE
TUESDAY NIGHT AND WEDNESDAY. PAY CLOSE ATTENTION TO THE LATEST
WEATHER FORECAST INFORMATION AS THIS WINTER WEATHER SITUATION
CONTINUES TO UNFOLD.

\$\$

3. Winter Storm Watch. An example of a late second period Winter Storm Watch. NWS attribution line is mandatory.

WWUS44 KAMA 262104
WSWAMA

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE AMARILLO TX
304 PM CST FRI JAN 26 2001

.A STRONG UPPER LEVEL STORM SYSTEM LOCATED JUST OFF THE CALIFORNIA COAST FRIDAY AFTERNOON IS FORECAST TO MOVE INTO THE DESERT SOUTHWEST BY SATURDAY EVENING...THEN INTO THE SOUTHERN AND CENTRAL PLAINS BY MONDAY MORNING. AT THE SAME TIME...A SURGE OF COLD CANADIAN AIR WILL MOVE SOUTH INTO THE REGION TONIGHT. IN ADDITION...PLENTY OF MOISTURE WILL MOVE BACK INTO THE AREA TONIGHT AND SATURDAY AND BE LIFTED OVER THE COLD AIR. THESE ELEMENTS WILL SET THE STAGE FOR WINTER WEATHER CONDITIONS ON SATURDAY AND SUNDAY.

OKZ001>003-TXZ001>020-270400-
ARMSTRONG-BEAVER-CARSON-CIMARRON-COLLINGSWORTH-DALLAM-
DEAF SMITH-DONLEY-GRAY-HANSFORD-HARTLEY-HEMPHILL-HUTCHINSON-
LIPSCOMB-MOORE-OCHILTREE-OLDHAM-POTTER-RANDALL-ROBERTS-SHERMAN
-TEXAS-WHEELER-
INCLUDING THE CITIES OF...AMARILLO...BEAVER...BOISE CITY...BOOKER...
BORGER...CANADIAN...CANYON...CLARENDON...CLAUDE...DALHART...DUMAS...
GUYPON...HARTLEY...HEREFORD...MIAMI...PAMPA...PANHANDLE...PERRYTON...
SHAMROCK...SPEARMAN...STRATFORD...VEGA...WELLINGTON
304 PM CST FRI JAN 26 2001

...WINTER STORM WATCH IN EFFECT FROM SATURDAY AFTERNOON THROUGH
SUNDAY AFTERNOON...

THE NATIONAL WEATHER SERVICE IN AMARILLO TX HAS ISSUED A WINTER STORM WATCH. PRECIPITATION IS EXPECTED TO BEGIN SATURDAY IN THE EARLY AFTERNOON HOURS ACROSS MOST OF THE TEXAS AND OKLAHOMA PANHANDLES. PRECIPITATION WILL BE IN THE FORM OF SNOW ACROSS MUCH OF THE AREA WITH SLEET MIXED WITH SNOW OCCURRING ACROSS THE SOUTHEAST TEXAS PANHANDLE. GREATER THAN FOUR INCHES OF SNOW IS POSSIBLE WITH SOME LOCATIONS RECEIVING AS MUCH AS EIGHT INCHES. THERE IS STILL SOME UNCERTAINTY AS TO THE EXACT TRACK OF THE UPPER LEVEL STORM SYSTEM...AND SNOW TOTALS COULD CHANGE. THE SNOW IS EXPECTED TO CONTINUE THROUGH SUNDAY AND BEGIN TO TAPER OFF SUNDAY NIGHT. PREPARATIONS SHOULD BE MADE NOW FOR HAZARDOUS WINTER WEATHER CONDITIONS ON SATURDAY AND SUNDAY.

REMEMBER...A WINTER STORM WATCH MEANS CONDITIONS ARE FAVORABLE FOR HAZARDOUS WINTER WEATHER IN AND CLOSE TO THE WATCH AREA. STAY TUNED TO NOAA WEATHER RADIO...COMMERCIAL TELEVISION OR RADIO STATIONS...OR YOUR CABLE TELEVISION SERVICE PROVIDER FOR LATER STATEMENTS FROM THE NATIONAL WEATHER SERVICE CONCERNING THIS POTENTIALLY DANGEROUS WINTER WEATHER EVENT.

\$\$

WOLTERS

4. Winter Weather Warning. An example of a Heavy Snow Warning. An example of a Heavy Snow Warning, first issuance. NWS attribution line is mandatory.

WWUS43 KOAX 011030
WSWOMA

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE OMAHA NE
430 AM CST FRI MAR 1 2002

...HEAVY SNOW TO HIT PARTS OF EASTERN NEBRASKA AND WESTERN IOWA TODAY...

.THE NATIONAL WEATHER SERVICE AT OMAHA HAS UPGRADED ITS WINTER STORM WATCH FOR PARTS OF EASTERN NEBRASKA AND WESTERN IOWA...TO A HEAVY SNOW WARNING. THE WARNED AREA HAS BEEN ENLARGED FROM THE PREVIOUS WATCH.

A STRONG STORM SYSTEM WILL TRACK ACROSS SOUTHERN KANSAS TODAY AND SOUTHERN MISSOURI TONIGHT. MOISTURE WILL EXTEND WELL NORTH OF THE STORM TRACK. LIGHT SNOW HAS ALREADY BEGUN TO FALL ACROSS THE AREA. THE SNOW WILL BECOME MORE WIDESPREAD DURING THE MORNING HOURS...AND BECOME HEAVY THIS AFTERNOON AND THIS EVENING. AT LEAST 6 TO 8 INCHES OF SNOWFALL IS EXPECTED IN THE WARNED AREA.

IAZ055-056-069-079-080-NEZ044-045-050>053-065>067-078-011900-
BUTLER-CASS-DODGE-DOUGLAS-HARRISON-LANCASTER-MILLS-MONTGOMERY-
POTTAWATTAMIE-SALINE-SARPY-SAUNDERS-SEWARD-SHELBY-WASHINGTON-
INCLUDING THE CITIES OF...LINCOLN AND OMAHA
430 AM CST FRI MAR 1 2002

...HEAVY SNOW WARNING IN EFFECT FROM 100 PM THIS AFTERNOON TO 600 AM CST SATURDAY....

THE NATIONAL WEATHER SERVICE IN OMAHA HAS ISSUED A HEAVY SNOW WARNING. LIGHT SNOW WILL BECOME MORE WIDESPREAD AND HEAVY THIS AFTERNOON... WITH 8 TO 12 INCHES OF TOTAL SNOWFALL ACCUMULATION BEFORE THE SNOW ENDS LATE TONIGHT. NORTHEAST WINDS AT 15 TO 25 MPH WILL BECOME NORTH TONIGHT...PRODUCING SOME BLOWING AND DRIFTING OF SNOW.

REMEMBER...A HEAVY SNOW WARNING IS ISSUED WHEN SEVERE WINTER WEATHER IS IMMINENT OR HIGHLY LIKELY.

PEOPLE PLANNING TO TRAVEL TODAY OR TONIGHT SHOULD BE PREPARED FOR DETERIORATING AND HAZARDOUS DRIVING CONDITIONS. IF TRAVEL IS NECESSARY...MAKE SURE THAT YOUR CAR IS WINTERIZED AND IN GOOD WORKING ORDER. LISTEN TO NOAA WEATHER RADIO OR OTHER MEDIA OUTLETS FOR LATER FORECASTS AND STATEMENTS REGARDING THIS WINTER STORM.

\$\$

POLLACK/ZAPOTOCNY

5. Winter Weather Advisory. An example of an updated Lake Effect Snow Advisory, second issuance. NWS attribution line is optional for updates and is included in this example.

WWUS43 KGRR 270900
WSWGRR

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE GRAND RAPIDS MI
400 AM EST THU DEC 27 2001

...LAKE EFFECT SNOW ADVISORY CONTINUES THROUGH THIS AFTERNOON FOR PORTIONS OF WEST MICHIGAN...

.LAKE EFFECT SNOW CONTINUES TO MOVE INLAND OFF OF LAKE MICHIGAN AS COLD AIR RIDES OVER ITS WARMER WATERS. THE HEAVIEST SNOW HAS FALLEN OVER MUSKEGON...MONTCALM...KENT...OTTAWA...ALLEGAN AND VAN BUREN COUNTIES OVERNIGHT. AN ADDITIONAL 2 TO 5 INCHES OF ACCUMULATION IS EXPECTED TODAY OVER THESE COUNTIES INTO THIS AFTERNOON...BEFORE DIMINISHING TO SCATTERED SNOW SHOWERS BY THIS EVENING.

MIZ050-051-056-057-064-071-271615-
ALLEGAN-KENT-MONTCALM-MUSKEGON-OTTAWA-VAN BUREN-
INCLUDING THE CITIES OF...STANTON...SOUTH HAVEN...MUSKEGON...

HOLLAND...GRAND RAPIDS...ALLEGAN AND HARTFORD
400 AM EST THU DEC 27 2001

...LAKE EFFECT SNOW ADVISORY IN EFFECT UNTIL 600 PM EST THIS EVENING...

THE NATIONAL WEATHER SERVICE IN GRAND RAPIDS HAS CONTINUED THE LAKE EFFECT SNOW ADVISORY. AN ADDITIONAL 2 TO 5 INCHES OF LAKE EFFECT SNOW CAN BE EXPECTED TODAY. THE SNOW IS EXPECTED TO DIMINISH TO SCATTERED SNOW SHOWERS IN MOST AREAS BY THIS EVENING.

IF YOU PLAN ON TRAVELING TODAY EXPECT SNOW COVERED ROADS THAT WILL BE SLICK. ALSO...GIVEN THE NATURE OF LAKE EFFECT SNOW...VISIBILITY CAN BECOME REDUCED VERY RAPIDLY...SOMETIMES TO NEAR ZERO OVER ONLY A SHORT DISTANCE. PLAN ON EXTRA TRAVEL TIME BECAUSE CONDITIONS WILL REQUIRE YOU TO SLOW DOWN.

\$\$

MJS/JK

6. Combination of winter weather events. Example of a WSW with five segments containing two cancellations, two warnings and one advisory. NWS attribution line is optional for updates and is included in this example.

WWUS44 KOUN 280458
WSWOKC

URGENT - WINTER WEATHER MESSAGE
NATIONAL WEATHER SERVICE NORMAN OK
1057 PM CST SAT JAN 27 2001

.AN INTENSE STORM SYSTEM WILL MOVE SLOWLY EASTWARD FROM ARIZONA TO THE SOUTHERN PLAINS STATES THROUGH THE WEEKEND. PRECIPITATION WILL CONTINUE ACROSS OKLAHOMA AND WESTERN NORTH TEXAS OVERNIGHT...AND MAY BE HEAVY AT TIMES... ESPECIALLY ON SUNDAY.

MODERATE TO HEAVY PRECIPITATION IS FORECAST TO ACCOMPANY THIS STORM SYSTEM OVERNIGHT... CREATING THE POTENTIAL FOR A SIGNIFICANT AMOUNT OF FREEZING RAIN...SLEET AND SNOW. AT THIS TIME... IT APPEARS THAT THE BEST POTENTIAL FOR SNOW WILL BE ACROSS EXTREME NORTHWEST OKLAHOMA. MEANWHILE... THE AREA FROM THE SOUTHWEST CORNER OF OKLAHOMA... NORTHEAST INTO NORTH-CENTRAL OKLAHOMA APPEARS TO BE THE TARGET OF A MAJOR ICE STORM. VERY SLOWLY RISING TEMPERATURES...

JUST ABOVE FREEZING... WILL LIKELY SPARE THE AREA ALONG AND SOUTHEAST OF INTERSTATE 44 FROM SIGNIFICANT ICE ACCUMULATIONS.

THE LATEST DATA CONTINUE TO SUGGEST THAT THIS STORM HAS THE POTENTIAL TO PRODUCE VERY DANGEROUS AND POSSIBLY LIFE-THREATENING ICE ACCUMULATIONS FROM 1 TO 2 INCHES IN AREAS FROM SOUTHWEST INTO NORTH-CENTRAL OKLAHOMA. THIS AREA INCLUDES THE CITIES OF ELK CITY... HOBART... WEATHERFORD... WATONGA... ENID... CHEROKEE... MEDFORD AND FAIRVIEW.

THIS STORM SYSTEM MAY ALSO CONTINUE TO AFFECT THE AREA SUNDAY NIGHT AND INTO MONDAY. AS A RESULT... WARNINGS AND ADVISORIES MAY NEED TO BE EXTENDED BEYOND SUNDAY WITH LATER FORECASTS.

OKZ025>029-044-TXZ086>088-281100-
BAYLOR TX-CLEVELAND OK-COTTON OK-GRADY OK-KNOX TX- LINCOLN
OK-MCCLAIN OK-OKLAHOMA OK-WICHITA TX-
INCLUDING THE CITIES OF...CHICKASHA OK...NORMAN OK...OKLAHOMA CITY OK
...WICHITA FALLS TX
1057 PM CST SAT JAN 27 2001

...ICE STORM WARNING IS CANCELED...

THE NATIONAL WEATHER SERVICE IN TULSA HAS CANCELED THE ICE STORM WARNING. TEMPERATURES ARE EXPECTED TO REMAIN NEAR OR JUST ABOVE FREEZING ALONG AND SOUTHEAST OF INTERSTATE 44 IN CENTRAL OKLAHOMA. THIS SHOULD PREVENT SIGNIFICANT ICE ACCUMULATION IN THIS AREA. PERIODS OF COLD RAIN WILL CONTINUE OVERNIGHT AND INTO SUNDAY.

\$\$

OKZ039-045-TXZ089-090-281100-
ARCHER TX-CLAY TX-JEFFERSON OK-STEPHENS OK-
INCLUDING THE CITY OF...DUNCAN OK
1057 PM CST SAT JAN 27 2001

...FREEZING RAIN ADVISORY IS CANCELED...

THE NATIONAL WEATHER SERVICE IN TULSA HAS CANCELED THE FREEZING RAIN ADVISORY. TEMPERATURES IN THE HENRIETTA TEXAS THROUGH DUNCAN OKLAHOMA AREA HAVE WARMED TO SEVERAL DEGREES ABOVE FREEZING. THE TEMPERATURE IS NOT EXPECTED TO GO BELOW FREEZING OVERNIGHT OR SUNDAY... SO PRECIPITATION IS EXPECTED TO BE MOSTLY IN LIQUID FORM... ALTHOUGH SOME SLEET AND SNOW WILL BE POSSIBLE AT TIMES.

\$\$

OKZ006>008-011>024-033>036-TXZ083-281100-
ALFALFA OK-BECKHAM OK-BLAINE OK-CADDO OK-CANADIAN OK-CUSTER OK-
DEWEY OK-GARFIELD OK-GRANT OK-GREER OK-HARDEMAN TX-HARMON OK-
JACKSON OK- KAY OK-KINGFISHER OK- KIOWA OK- LOGAN OK-MAJOR
OK-NOBLE OK-PAYNE OK-ROGER MILLS OK-WASHITA OK-

INCLUDING THE CITIES OF....ALTUS OK...CLINTON/WEATHERFORD OK...ELK CITY
OK...EL RENO OK...ENID OK...GUTHRIE OK...HOBART OK...PONCA CITY OK...
STILLWATER OK

1057 PM CST SAT JAN 27 2001

...ICE STORM WARNING IN EFFECT UNTIL 500 PM CST SUNDAY...

THE NATIONAL WEATHER SERVICE IN TULSA HAS CONTINUED THE ICE STORM
WARNING FOR MOST OF OKLAHOMA TO THE NORTHWEST OF INTERSTATE 44.
PERIODS OF FREEZING RAIN WILL CONTINUE THROUGH TONIGHT AND SUNDAY.
SCATTERED THUNDERSTORMS ARE EXPECTED TO PRODUCE HEAVIER
ACCUMULATIONS OF ICE. THE PRECIPITATION MAY GRADUALLY TRANSITION
TO A SNOW/SLEET MIXTURE SUNDAY EVENING BEFORE ENDING AROUND
MIDNIGHT. DANGEROUS TOTAL ICE STORM ACCUMULATIONS OF 1 TO 2 INCHES
ARE EXPECTED BY SUNDAY EVENING.

PEOPLE ARE URGED TO BE PREPARED FOR PROLONGED POWER OUTAGES AND
TREACHEROUS TRAVEL CONDITIONS. IF YOU MUST TRAVEL...ALLOW EXTRA
TIME TO REACH YOUR DESTINATION...LET SOMEONE KNOW YOUR TRAVEL
PLANS AND CARRY A CELLULAR PHONE.

\$\$

OKZ004-005-009-010-281100-
ELLIS OK-HARPER OK-WOODS OK-WOODWARD OK-
INCLUDING THE CITY OF...WOODWARD OK
1057 PM CST SAT JAN 27 2001

...WINTER STORM WARNING IN EFFECT UNTIL 500 PM CST SUNDAY...

THE NATIONAL WEATHER SERVICE IN TULSA HAS CONTINUED THE WINTER
STORM WARNING. A MIXTURE OF SNOW... SLEET AND SOME FREEZING RAIN IS
EXPECTED OVER NORTHWEST OKLAHOMA TONIGHT THROUGH SUNDAY... WITH
THE PRECIPITATION TRANSITIONING TO MOSTLY SNOW LATE TONIGHT AND
SUNDAY. TOTAL STORM ACCUMULATION OF SNOW... SLEET AND ICE FROM 4 TO
6 INCHES IS LIKELY. HOWEVER...TOTAL ACCUMULATIONS WILL BE HIGHLY
DEPENDENT ON WHAT TYPE OF PRECIPITATION IS DOMINANT. IN AREAS WHERE

THE PRECIPITATION TYPE IS MOSTLY SNOW...AMOUNTS UP TO 10 INCHES WILL BE POSSIBLE.

PEOPLE ARE URGED TO BE PREPARED FOR PROLONGED POWER OUTAGES AND TREACHEROUS TRAVEL CONDITIONS. IF YOU MUST TRAVEL...ALLOW EXTRA TIME TO REACH YOUR DESTINATION... LET SOMEONE KNOW YOUR TRAVEL PLANS AND CARRY A CELLULAR PHONE.

\$\$

OKZ037-038-TXZ084-085-281100-
COMANCHE OK-FOARD TX-TILLMAN OK-WILBARGER TX-
INCLUDING THE CITIES OF...LAWTON OK...VERNON TX
1057 PM CST SAT JAN 27 2001

...FREEZING RAIN ADVISORY IN EFFECT UNTIL 500 PM CST SUNDAY...

THE NATIONAL WEATHER SERVICE IN TULSA HAS CONTINUED THE FREEZING RAIN ADVISORY FOR THE AREA FROM SOUTHWEST OF VERNON TEXAS... NORTHEAST TO LAWTON OKLAHOMA. PERIODS OF RAIN OR FREEZING RAIN WILL CONTINUE THROUGH TONIGHT AND SUNDAY. SCATTERED THUNDERSTORMS PRODUCING HEAVIER RAINFALL ARE ALSO POSSIBLE. THE PRECIPITATION MAY GRADUALLY TRANSITION TO A MIXTURE OF SLEET... FREEZING RAIN AND SNOW...SUNDAY MORNING... AND EVENTUALLY TO ALL SNOW LATE SUNDAY AND AND SUNDAY NIGHT. SOME ICE ACCUMULATION IS LIKELY... ESPECIALLY ON TREES AND POWER LINES... AND POSSIBLY ON BRIDGES AND OVERPASSES.

IF YOU MUST TRAVEL...ALLOW EXTRA TIME TO REACH YOUR DESTINATION.

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CMS

APPENDIX B - Winter Weather Definitions

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1. Introduction. This section contains definitions of winter weather elements used in the winter weather products.
2. Hazardous Winter Weather. Hazardous winter weather is a winter weather event that endangers life or property, provides an impediment to commerce, or if proper precaution is not taken, can become life threatening.
3. Hazardous Winter Weather Phenomena Definitions.

3.1 Blizzard. A blizzard means that the following conditions are expected to prevail for a period of 3 hours or longer:

- a. Sustained wind or frequent gusts to 35 miles an hour or greater; and
- b. Considerable falling and/or blowing snow (i.e., frequently reducing visibility below 1/4 mile).

Although there is no set temperature requirement for blizzard conditions, the life-threatening nature of the low temperatures in combination with the other hazardous conditions of wind, snow, and poor visibility increases dramatically when the temperature falls below 20°F.

3.2 Freezing Rain or Drizzle. Rain or drizzle that falls in liquid form but freezes upon impact with the ground or exposed objects. Small accumulations of ice can cause driving and walking difficulties while heavy accumulations produce extremely dangerous and damaging situations primarily by pulling down trees and utility lines.

3.3 Ice Storm. An ice storm is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of 0.25 inches (one quarter of an inch) or greater. Some variations in the criteria for "significant" accumulations of ice may be established by the regional director and formalized through the issuance of Supplements. This includes both higher thresholds for regions that are accustomed to ice events and lower thresholds for areas where lesser amounts can cause major problems.

3.4 Sleet. Sleet is a type of precipitation consisting of transparent or translucent pellets of ice, 5 mm or less in diameter. These pellets of ice usually bounce when hitting hard ground and make a sound upon impact.

3.4.1 Heavy Sleet. Heavy sleet is a relatively rare event defined as an accumulation of ice pellets covering the ground to a depth of 1/2 inch or more.

3.5 Snow. Frozen precipitation in the form of (white or translucent) ice crystals which steadily falls for several hours or more. Qualifiers, such as occasional or intermittent, are used when a steady, prolonged (for several hours or more) fall is not expected.

3.5.1 Blowing Snow. Blowing snow is snow lifted from the surface of the earth by the wind to a height of 6 feet or more above the surface (higher than drifting snow), and blown about in such quantities that horizontal visibility is reduced to less than 7 statute miles. Blowing snow is usually accompanied by drifting snow.

3.5.2 Drifting Snow. Drifting snow is snow lifted from the surface of the earth by the wind to a height of less than 6 feet above the surface. Drifting snow may occur during or after a snowfall. Drifting snow is usually associated with blowing snow.

3.5.3 Heavy Snow. Heavy Snow generally means:

- a. Snowfall accumulating to 4 inches or more in depth in 12 hours or less; or
- b. Snowfall accumulating to 6 inches or more in depth in 24 hours or less.

Some variation in the criteria for heavy snowfall in certain sections of the country may be established at the option of the regional director. This includes both higher thresholds for regions that are accustomed to snow and lower thresholds for areas where lesser accumulations can cause significant impacts. Such variations should be formalized through the issuance of Regional Supplements.

Express snowfall amounts as a range of values, e.g., "8 to 12 inches." However, in heavy snow situations where there is considerable uncertainty concerning the range of values, it may be more appropriate to use phrases, such as "...up to 12 inches..." or alternatively "...8 inches or more..."

3.5.4 Snow Flurries. Snow flurries are short duration (generally a few minutes) light snow showers with no measurable accumulation (trace category).

3.5.5 Snow Showers. Snow showers are brief periods of snowfall in which intensity can be varied and may change rapidly. Some accumulation is possible. A snow shower in which light snow falls for a few minutes is typically called a snow flurry.

3.5.6 Snow Squalls. Snow squalls are intense, but limited duration, periods of moderate to heavy snowfall, accompanied by strong, gusty surface winds and possibly lightning (generally moderate to heavy snow showers). Snow accumulation may be significant. Regional variation to this definition is expected. For example, close to the Great Lakes, snow squalls are usually locally intense, narrow bands of heavy snow that can extend over long distances, persist for many hours, and produce 6 inches or more of snow in 12 hours or less.

3.6 Wind Chill. The Wind Chill Temperature (WCT) is the air temperature at which the heat transfer rate and skin temperature would be the same in the absence of wind. The WCT represents the temperature the body feels when it is exposed to wind and cold. Prolonged exposure can lead to frostbite and hypothermia.

Based on the latest human study research provided by the Office of the Federal Coordinator for Meteorology, the wind chill chart (Figure B-2) provides WCTs and objective frostbite time values. The threshold for dangerous WCT starts at -18°F, where frostbite can occur on exposed

flesh within 30 minutes. As the WCT drops, the frostbite time decreases, especially with higher wind speeds. WFOs will include frostbite time references in the body of text for Wind Chill Warnings and should include frostbite time references, when applicable, for Wind Chill Advisories.

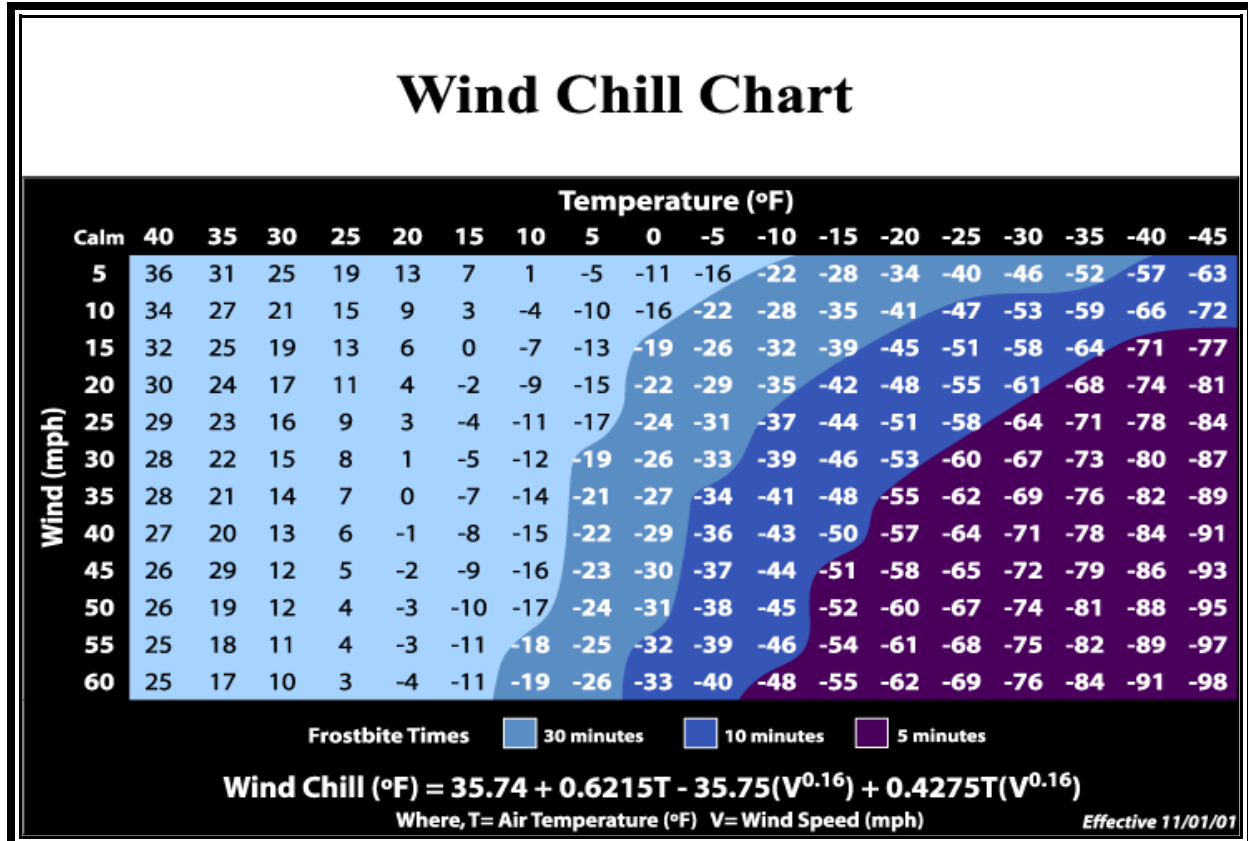


Figure B-1. Wind Chill Chart and formula with frostbite times shaded.